

## CLAIMS

- Sub.* *A1*
1. A module component comprising:  
a substrate made of resin having a penetration hole;  
a circuit wiring disposed on both sides of said substrate; and  
5 a chip component having a height almost same as a depth of said penetration hole and put in the penetration hole for electrically coupling said circuit wiring disposed on both sides of said substrate,  
wherein the penetration hole is formed according to a specified rule, and  
wherein a chip component having a specific value is accommodated to  
10 compose a desired circuit.
  
  2. A module component according to claim 1, wherein the penetration hole is formed only at a specified position according to a matrix, and said chip component having the specific value is  
15 accommodated to compose the desired circuit.
  
  3. A module component according to claim 1, wherein the penetration holes are formed according to a matrix, and said chip component having the specific value is put in a specified penetration hole.  
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  4. A module component according to claim 1 further comprising a fixing member for filling up a gap between said chip component put in the penetration hole and the penetration hole.
  
  - 25 5. A module component according to claim 1, wherein the penetration hole is tapered.

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6. A module component according to claim 1, wherein support means is formed at the penetration hole for supporting said chip component.

5 7. A module component according to claim 1 further comprising an auxiliary substrate disposed at least over one of the both sides of said substrate.

10 8. A module component according to claim 1 further comprising first and second auxiliary substrates disposed with holding said substrate therebetween, wherein a desired circuit is composed by employing a chip component of a specified height being greater than the depth of the penetration hole and not projecting from said first and second auxiliary substrates when put in the penetration hole.

15 9. A module component according to claim 1, wherein an end of said chip component and a surface of said substrate are formed in different colors.

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B47 10. A module component according to claim 1 further comprising an IC chip mounted on an auxiliary substrate; and a capacitor put in a penetration hole immediately beneath said IC chip to be coupled directly with said IC chip.

25 11. A module component according to claim 1 further comprising a ground layer disposed one of beneath said substrate and by way of an auxiliary substrate, wherein said ground layer is coupled with said circuit

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wiring disposed on a lower side of said substrate.

12. A module component according to claim 1 further comprising:  
(647) an IC chip mounted on an auxiliary substrate; and  
5 a ground layer disposed one of beneath said substrate and by way of  
an auxiliary substrate,  
wherein said IC chip is coupled directly with said ground layer.

13. A manufacturing method according to a module component  
10 comprising the steps of:

15 forming a penetration hole on a substrate made of resin;  
inserting a chip component into the penetration hole, the chip  
component having an almost same height as a depth of the penetration  
hole;  
forming a circuit wiring for coupling the chip component on said  
substrate; and

heating, compressing, and adhering an auxiliary substrate on at least one of both sides of the substrate,  
wherein the penetration hole is formed according to a specified rule, and a  
chip component of a specific value is accommodated to compose a desired circuit.

14. A manufacturing method according to claim 13, wherein said step of forming the penetration hole comprises forming the penetration hole at a specified position according to a matrix, and a chip component of a specific value is put in the penetration hole to compose a desired circuit.

15. A manufacturing method according to claim 13, wherein said step of forming the penetration hole comprises the step of forming the penetration holes according to a matrix, and wherein said step of inserting the chip component comprises the step of inserting the chip component of 5 a specific value in a specified penetration hole to compose a desired circuit.

16. A module component comprising:  
a molded element with a chip component molded said resin with resin, an end electrode of said chip component being exposed; and  
10 a circuit wiring on at least one side of said molded elements,  
wherein said chip component is disposed according to a specified rule, and  
said chip component is molded with said resin to compose a desired circuit.
- 15 17. A module component according to claim 16, wherein said chip component is disposed at a specified position according to a matrix, and said chip component is molded with said resin to compose a desired circuit.
- 20 18. A module component according to claim 17 further comprising a dummy component having a same size as said chip component disposed at a position not filled with said chip component according to the matrix.
19. A module component according to claim 16, wherein said 25 molded element is molded with one of epoxy resin and phenol resin.
20. A module component according to claim 16, wherein said resin

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contains a filler having at least one of a high heat conductivity and heat resistance.

21. A module component according to claim 16, wherein said resin  
5 contains at least one of  $\text{Al}_2\text{O}_3$ ,  $\text{SiC}$ ,  $\text{Al}_3\text{N}_4$ , and  $\text{Si}_3\text{N}_4$  as a filler.

22. A module component according to claim 16, wherein said resin  
contains at least one of ceramic powder and  $\text{SiO}_2$  as a filler.

10 23. A module component according to claim 16, wherein said resin  
contains a magnetic material.

15 24. A module component according to claim 16, wherein said end  
electrode of said chip component and a surface of said molded element are  
formed in different colors.

20 25. A module component according to claim 16, wherein said  
molded element comprises a ground layer over a bottom of said molded  
element, and wherein said ground layer is directly coupled with said end  
electrode.

26. A module component comprising:  
a chip component disposed according to a specified rule;  
an IC chip mounted to one side of a molded element formed by  
25 resin;  
a circuit wiring on a substrate for directly coupling an electrode  
terminal of said IC chip with said wiring patterns on said substrate

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through said chip component.

27. A manufacturing method of a module component comprising:  
an inserting step of inserting a chip component in a molding die;  
5 a primary molding step of filling the molding die with resin with an  
end electrode of the chip component exposed;  
a peeling step of peeling the molding die at a side of inserting the  
chip component;  
a secondary molding step of filling the molding die with resin with  
10 an end electrode of the chip component; and  
a forming step of forming a circuit wiring on one side or both sides  
of a molded element molded with resin,  
wherein the chip component is disposed according to a specified rule, and  
the chip component are molded with the resin to compose a desired circuit.  
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28. A manufacturing method according to claim 27, wherein the  
chip component is disposed in a specified position according to a matrix,  
and the chip component of a specific value is molded with the resin to  
compose a desired circuit.  
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29. A manufacturing method according to claim 28, wherein a  
dummy component having a same size as the chip component is inserted  
at a position where the chip component is not inserted according to the  
matrix.  
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30. A manufacturing method of a module component comprising:  
an inserting step of inserting a chip component in a molding die, the

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- chip component being disposed according to a specified rule;
- a primary molding step of filling with resin with an end electrode of the chip component exposed;
- a peeling step of peeling the molding die at a side of inserting the
- 5 chip component;
- a secondary molding step of filling with resin with an end electrode of the chip component exposed; and
- a step of mounting an IC chip on one side of a molded element molded with resin and coupling an other side to a substrate,
- 10 wherein a electrode terminal of the IC chip is directly coupled with a circuit wiring on the substrate through the chip component.

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